CAVICIDE™ AF

Technical Bulletin

CaviCide™ AF is an alcohol free, quaternary ammonium chlorides based multi-purpose disinfectant intended for use in cleaning, decontaminating and disinfecting hard non-porous, inanimate surfaces in hospitals, laboratories, and other areas where environmental control of cross contamination between treated surfaces is important.
CaviCide™ AF EPA Registration number: 1839-225-46781.

BIOCIDAL EFFICACY

CaviCide™ AF has biocidal effectiveness against the following microorganisms with a 3 minute contact time for:

Mycobacterium tuberculosis BCG (*Mycobacterium bovis*) (TB)
Staphylococcus aureus
Salmonella enterica
Pseudomonas aeruginosa
Escherichia coli
Escherichia coli O157:H7
Listeria monocytogenes
Yersinia enterocolitica
Enterococcus faecium
Corynebacterium ammoniagenes
Salmonella (*typhi*) *enterica*
Methicillin resistant *Staphylococcus aureus* (MRSA)
Vancomycin resistant *Enterococcus faecalis* (VRE)
Streptococcus pyogenes
Vancomycin intermediate resistant *Staphylococcus aureus* (VISA)
Methicillin resistant *Staphylococcus epidermidis* (MRSE)
Community Associated Methicillin Resistant Staphylococcus aureus (CA-MRSA) (NRS 123)
Community Associated Methicillin Resistant Staphylococcus aureus (CA-MRSA) (NRS 384)
Influenza A virus strain H1N1
Paramyxovirus (Mumps)
Rhinovirus type 39
Rotavirus

2 minute contact time for:

Avian Influenza A virus strain H3N2
Avian Influenza A virus strain H9N2
Human Coronavirus
SARS associated Coronavirus

1 minute contact time for:

HIV-1 (associated with AIDS)

30 second contact time for:

Norovirus
Feline Calicivirus (FCV)
Rabies Virus

Tuberculocidal Efficacy Studies:

Test Method: AOAC Confirmative In Vitro Test for Determining Tuberculocidal Activity (Confirmatory Tuberculocidal Activity of a Germicidal Spray)

Test Conditions: Ready-To-Use (RTU), 5% organic soil load, **3 minute** contact time.

Organisms: *Mycobacterium bovis*, BCG (TB)

Conclusion: Under the conditions of this investigation, CaviCide™ AF demonstrated **tuberculocidal** activity against *Mycobacterium bovis* (BCG) according to criteria established by the U.S. Environmental Protection Agency for registration and labeling of a disinfectant product as a tuberculocide.

Bactericidal Efficacy Studies:

Test Method: AOAC Germicidal Spray Products Testing as Disinfectants

Test Conditions: Ready-To-Use (RTU), **3 minute** contact time, 5% organic soil load, room temperature.

Organisms:
Staphylococcus aureus (ATCC 6538)
Salmonella (choleraesuis) enterica (ATCC 10708)
Pseudomonas aeruginosa (ATCC 15442)
Community Associated Methicillin Resistant *Staphylococcus aureus* (CA-MRSA) (NRS 123) Genotype USA400
Community Associated Methicillin Resistant *Staphylococcus aureus* (CA-MRSA) (NRS 384) Genotype USA300
Corynebacterium ammoniagenes (ATCC 6871)
Enterococcus faecium (ATCC 6569)
Escherichia coli (ATCC 11229)
Escherichia coli O157:H7 (ATCC 43895)
Listeria monocytogenes (ATCC 35152)
Methicillin resistant *Staphylococcus aureus* (MRSA) (ATCC 33593)
Methicillin resistant *Staphylococcus epidermidis* (MRSE) (ATCC 51625)
Salmonella (*typhi*) *enterica* (ATCC 6539)
Streptococcus pyogenes (Necrotizing Fasciitis-Group A) (V.A. Medical Center Isolate 04001)
Vancomycin resistant *Enterococcus faecalis* (VRE) (ATCC 51575)
Vancomycin intermediate resistant *Staphylococcus aureus* (VISA) (CDC Isolate 99287)
Yersinia enterocolitica (ATCC 23715)

Conclusion: Under the conditions of this investigation, CaviCide™ AF demonstrated **bactericidal** activity against *Staphylococcus aureus*, *Salmonella (choleraesuis) enterica*, *Pseudomonas aeruginosa,* Community Associated Methicillin Resistant *Staphylococcus aureus*, (CA-MRSA) (NRS 123) Genotype USA400, Community Associated Methicillin Resistant *Staphylococcus aureus* (CA-MRSA) (NRS 384) Genotype USA300, *Corynebacterium ammoniagenes*, *Enterococcus faecium*, *Escherichia coli, Escherichia coli* O157:H7, *Listeria monocytogenes*, Methicillin resistant *Staphylococcus aureus* (MRSA), Methicillin resistant *Staphylococcus epidermidis* (MRSE), *Salmonella (typhi) enterica*, *Streptococcus pyogenes* (Necrotizing Fasciitis-Group A), Vancomycin resistant *Enterococcus faecalis* (VRE), Vancomycin intermediate resistant

Staphylococcus aureus (VISA) and *Yersinia enterocolitica* according to criteria established by the U.S. Environmental Protection Agency for registration and labeling of a disinfectant product as a bactericide.

Virucidal Efficacy Studies:

Test Method: U.S. E.P.A. Pesticide Assessment Guidelines for Determining Virucidal Efficacy of a Disinfectant for Use on Inanimate Environmental Surfaces.

Test Conditions: Ready-To-Use (RTU), **3 minute** contact time, 5% organic soil load, room temperature.

Organisms: Influenza A (H1N1) Virus (ATCC VR-1469, strain A/PR/8/34)
Paramyxovirus (Mumps) (ATCC VR-1438)
Rhinovirus Type 39 (ATCC VR-340)
Rotovirus

Conclusion: Under the conditions of this investigation, CaviCide™ AF demonstrated **virucidal** activity against Influenza A (H1N1) Virus, Paramyxovirus (Mumps), Rhinovirus Type 39 and Rotovirus according to criteria established by the U.S. Environmental Protection Agency for registration and labeling of a disinfectant product as a virucide.

NOTE: Per the EPA guidance document dated October 21, 2009, disinfectant products that bear label claims against human, avian, or swine influenza A virus, and have submitted and received approval of efficacy data to support these label claims, may include a label claim against the Pandemic 2009 H1N1 Influenza A Virus.

Test Method: U.S. E.P.A. Pesticide Assessment Guidelines for Determining Virucidal Efficacy of a Disinfectant for Use on Inanimate Environmental Surfaces.

Test Conditions: Ready-To-Use (RTU), **2 minute** contact time, 5% organic soil load, room temperature.

Organisms: Avian Influenza A Virus (H3N2) (Avian Reassortant) (ATCC VR-2072)
Avian Influenza Virus, Type A (Turkey/WIS/66) (H9N2)
Human Coronavirus (ATCC VR-740, strain 229E)
SARS Associated Coronavirus (ZeptoMetrix)

Conclusion: Under the conditions of this investigation, CaviCide™ AF demonstrated **virucidal** activity against Avian Influenza A Virus (H3N2), Avian Influenza Virus Type A (H9N2), Human Coronavirus and SARS Associated Coronavirus according to criteria established by the U.S. Environmental Protection Agency for registration and labeling of a disinfectant product as a virucide.

NOTE: Per the EPA guidance document dated October 21, 2009, disinfectant products that bear label claims against human, avian, or swine influenza A virus, and have submitted and received approval of efficacy data to support these label claims, may include a label claim against the Pandemic 2009 H1N1 Influenza A Virus.

Test Method: U.S. E.P.A. Pesticide Assessment Guidelines for Determining Virucidal Efficacy of a Disinfectant for Use on Inanimate Environmental Surfaces.

Test Conditions: Ready-To-Use (RTU), **1 minute** contact time, 5% organic soil load, room temperature.

Organisms: Human Immunodeficiency Virus, HTLV-IIIB, strain of HIV-1 (associated

with AIDS)

Conclusion: Under the conditions of this investigation, CaviCide™ AF demonstrated **virucidal** activity against Human Immunodeficiency Virus (HIV-1) according to criteria established by the U.S. Environmental Protection Agency for registration and labeling of a disinfectant product as a virucide.

Test Method: U.S. E.P.A. Pesticide Assessment Guidelines for Determining Virucidal Efficacy of a Disinfectant for Use on Inanimate Environmental Surfaces.

Test Conditions: Ready-To-Use (RTU), **30 seconds** contact time, 5% organic soil load, room temperature.

Organisms: Norovirus (Norwalk Virus)
Feline Calicivirus (FCV)
Rabies Virus (attenuated ERA strain, CDC)

Conclusion: Under the conditions of this investigation, CaviCide™ AF demonstrated **virucidal** activity against Norovirus (Norwalk Virus), Feline Calicivirus (FCV) and Rabies Virus according to criteria established by the U.S. Environmental Protection Agency for registration and labeling of a disinfectant product as a virucide.

TOXICITY STUDIES

Acute Dermal Toxicity Study: Test Guideline/Name: 870.1200 (Acute Dermal LD50)
Acute Dermal Toxicity Study of Detergent Disinfectant Pump Spray (in Rabbit). Unpublished study.
EPA Acceptance Date: February 22, 2005

Acute Skin Irritation Study: Test Guideline/Name: 870.2500 (Acute Dermal Irritation)
Acute Skin Irritation Study of Detergent Disinfectant Pump Spray (in Rabbit). Unpublished study.
EPA Acceptance Date: May 27, 2004.

Acute Oral Toxicity Study: Test Guideline/Name: 870.1100 (Acute Oral LD50)
Acute Oral Toxicity Study of Detergent Disinfectant Pump Spray (in Rats). Unpublished study.
EPA Acceptance Date: February 22, 2005.

Acute Eye Irritation Study: Test Guideline/Name: 870.2400 (Acute Eye Irritation)
Primary Eye Irritation Study of Detergent/Disinfectant Pump Spray (in Rabbits). Unpublished study.
EPA Acceptance Date: February 22, 2005.

Acute Inhalation Toxicity Study: Test Guideline/Name: 870.1300 (Acute Inhalation)
Acute Inhalation Toxicity Study of Detergent Disinfectant Pump Spray.Unpublished study.
EPA Acceptance Date: February 22, 2005.

Dermal Sensitization Study: Test Guideline/Name: 870.2600 (Skin Sensitization)
Dermal Sensitization Study of Detergent Disinfectant Pump Spray. Unpublished study.
EPA Acceptance Date: February 23, 2006